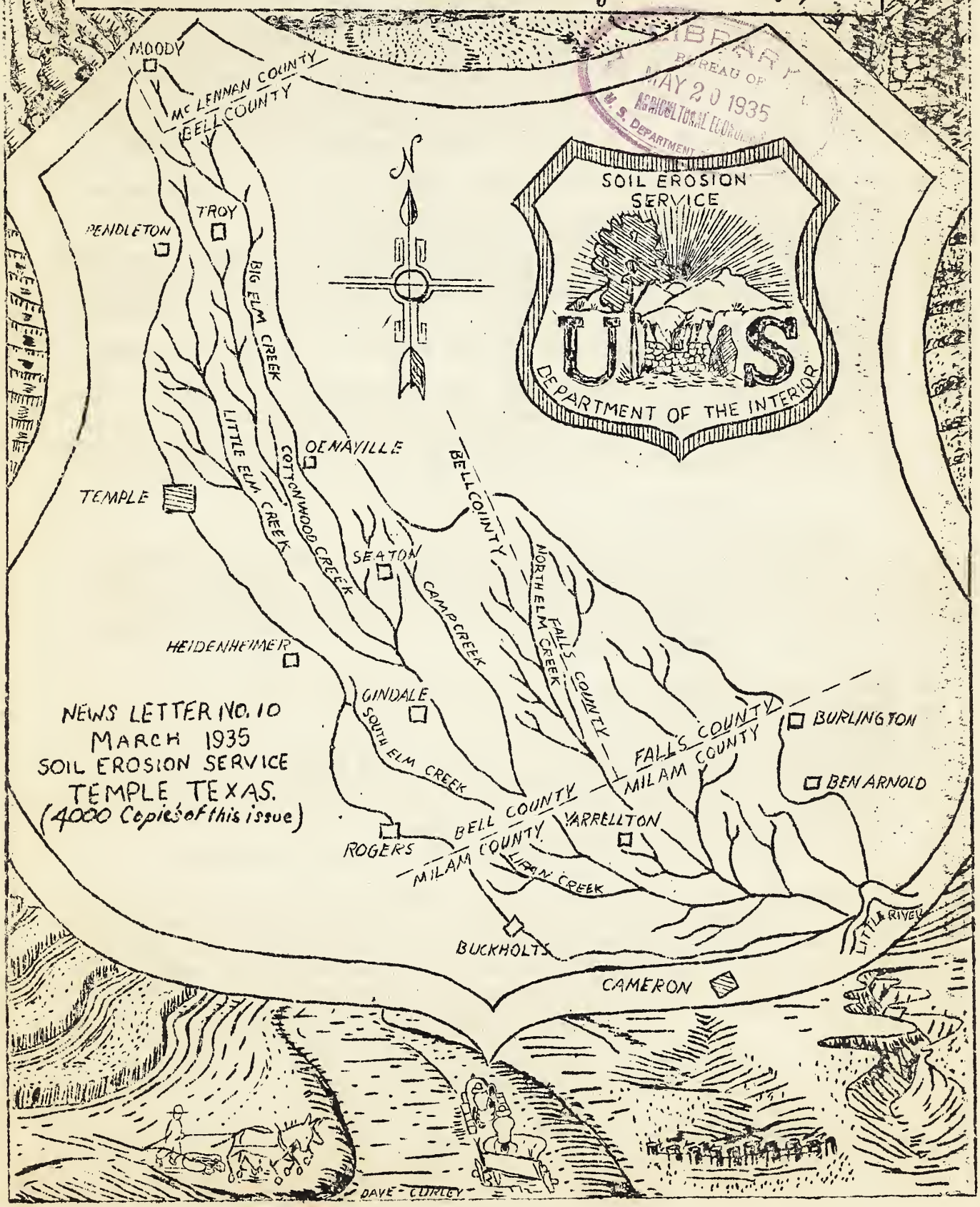
Elm Creek News



NEWS LETTER NO. 10
MARCH 1935
SOIL EROSION SERVICE
TEMPLE, TEXAS.
(4000 Copies of this issue)

TO OUR COOPERATORS

250 farmers in the Elm Creek Watershed have agreed to raise their own planting seed of hegari and red top cane for next year, so that they can continue to strip-crop their farms with close planted crops and have more feed for their workstock and livestock. Since they have agreed to do this we are offering some suggestions that might be helpful in growing planting seed for next year's seed. The seed should be harvested from the crop planted in rows.

1. Sow a few rows below or above terraces where strips are, or some other suitable place.
2. One acre will produce an average of 2500 lbs. of seed.
3. Do not plant too early or too thick; 5 to 6 pounds per acre is sufficient.
4. Do not plow too deeply after first cultivation but cultivate clean.
5. Watch for off-type or hybrid stalks; if they appear, pull up to prevent crossing.
6. Rogue field for planting seed, pick out mature and full heads on good stalks.
7. Care should be given in threshing. Have separator to run awhile to clean out all other seed and thresh Hegari seed separate from Red Top. Hand threshing, although slower, is recommended because there will be no danger of mixing with other seed, and there will be little or no cracked seed.

- - - - - - - - - - - - - - - - - - -

Since farmers in the Elm Creek Watershed are terracing and strip-cropping on their farms, more feed is being raised and the question is being asked as to how they can harvest and store this additional feed. The Soil Erosion Services is advocating the trench silo as the best method of storing this feed for the following reasons:

1. Makes better palatable feed for livestock and workstock.
2. It is equivalent to green feed for winter feed.
3. The silo is cheap and easy to build.
4. A suitable place can be located on almost every farm.
5. Labor of shocking, curing and baling hay is eliminated.
6. Feed can be stored indefinitely. Feed stored in a trench silo may be kept without much loss from eight to ten years.
7. Feed in a trench silo is wind proff, fire proof and frost proof.

Every effort should be made by the farmer to get trench silos on every farm, because we believe it will help develop a well balanced farm program which we want in the watershed. Grain sorghums and corn are two crops that make good ensilage. They may be planted either broadcast or in rows. Later suggestions will be made on how to build trench silos, when to cut feed and how to fill silos, etc. We will be glad to come out and help you, or make any suggestions that we can.

- - - - - - - - - - - - - - - - - - -

PASTURE DEVELOPMENT IN TEXAS

The Soil Erosion Experiment Stations in various parts of the country have provided ample data which indicates that a good coverage of grass is one of nature's best means of combating runoff rain-water and consequent erosion. On most of our pasture fields, however, there is not a complete enough covering of vegetation to bring about this highly desirable protection. During the long dry summers which are common in this part of the country, most of our pastures become very badly overgrazed, in which condition they offer little resistance to runoff and erosion.

It is realized, of course, that this is a bad practice, but at the same time we are forced to recognize the fact that it is a difficult one to entirely overcome. Most of the Texas ranges are over-stocked. If we were to carry only that number of cattle or other livestock which could be readily accommodated on our pastures through the dry part of the year, the numbers would have to be so drastically reduced that the majority of the stock men could not subscribe to such a program. It is evident that some system must be worked out whereby an optimum number of cattle can be grazed during the dry months and still protect the land to such an extent that it will not be entirely destroyed by erosion in a comparatively short time.

A practice which would be highly beneficial on most of our pastures would be that of rotating the fields. In order to do this it would probably be necessary to construct a great many more fences than now exist, so that the cattle could be kept on one field for a time and then transferred to another. This practice not only produces more pasturage, but also has the advantage of allowing the grasses to recover sufficiently that they may produce seed during the proper season of the year. When this is not allowed, the pasture becomes largely weeds, with most of the valuable grasses disappearing, and a great percentage of the land entirely bare. This is what has actually been happening over tremendous areas of our Texas pastures.

Another practice which should be followed more than is being done at present, and which is applicable at least to sections of the state where mixed farming is being carried on, is that of raising feed to supplement the pastures during the dry season.

When this is done, the stock can be kept off the pasture fields at times when the grass is already so short that additional grazing would be very harmful to it. Trench silos are very cheaply constructed and are entirely satisfactory for storing and preserving ensilage which can be kept as much as two years or even longer, if necessary. While this practice is not as yet very common throughout the state, it has been adopted by a sufficient number of livestock men to fully demonstrate its value, and promises to become much more generally used.

On pasture land having any appreciable degree of slope, a large amount of the rainfall runs off during seasons when the grass coverage is light or where the pasturing has been severe. If artificial means were adopted to hold more of the rainfall on the land, and caused it to penetrate into the soil, it would be possible to produce a much greater amount of pasturage, which in turn would help prevent runoff and thus again increase pasture growth. A great deal of work has recently been done in an attempt to

find some practical method of holding the rainfall on pasture land. Much of this work has been very satisfactory, especially where pastures are such that they lend themselves to these methods of controlling runoff.

On the Soil Erosion Service Projects in Texas the contouring of pastures has become quite popular. On the Elm Creek Project a considerable amount of steeply-sloping, sub-marginal land has been taken out of cultivation and pasture grasses are being established. The native grasses in this region consisted largely of Andropogons such as the big and the little blue stem, beard grass, etc., and in places considerable buffalo grass (Bulbilis dactyloides). Most of these grasses seed so sparsely and the seed shatter out so early that it has been almost impossible in the past to obtain sufficient seed from these species to enable new pastures to be established in that manner. At present we are working on new systems of collecting seed, and feel that it may be possible to perfect a method that will be practical from a commercial standpoint.

At present, most of our pasture work consists in setting out Bermuda grass or Buffalo sod and supplementing these with seed of Rescue grass, Rye grass, Dallis grass, Black Medic and Bur Clover. Black Medic cannot as yet be recommended at entirely practical for the Blackland region. Dallis grass also has its limitations because of its lack of adaptability to long drought periods.

In setting out new pastures, it is usually the practice to first run contour lines at horizontal intervals of approximately 10 feet. Upon land that is fairly regular these lines are run at twenty foot intervals and the intermediate line is obtained by plowing a furrow about midway between the two lines that have been run accurately with the level. Where Bermuda grass is to be planted, the usual practice is to plow one round with a long mold-board plow, forming a single back-furrow on each contour line. The Bermuda sod is then placed in the furrow on the upper side of the contour. Another round is then made with the plow, which covers the sod and makes the back-furrow still higher. If the ground is lumpy or very loose it is compacted over the sod by means of a roller or with a dual-wheel truck. The sod being planted on the upper side of this contour ridge will obtain more moisture than if planted in any other way. If the compacting process destroys the contour ridge it will be necessary to make another round with the contouring plow. We have found that in order to get a satisfactory stand from Dallis grass seed, it is necessary to plant such seed in a water furrow on the contour and then cover it very lightly. Mixing the seed with well pulverized barnyard manure, and putting this manure in bunches in waterfurrows has also been quite successful in getting the Dallis grass started.

Where pastures are being planted on hillsides that are extremely low in plant food, and it is doubtful if the grasses will survive or will spread satisfactorily, it is advisable to place some form of fertilizer in the furrows before the grass is planted. Barnyard manure or a commercial fertilizer may be used for this purpose and the amount that will have to be used will of course vary depending upon the conditions. In order to accomplish a complete coverage of grass at as early a date as possible, it is desirable to plant an additional

row of sod between the ten-foot contours. This may be done by simply opening a single furrow midway between the contour lines, dropping the sod into this, and covering it over with another plow furrow. It is sometimes desirable to place the contours as close together as five feet, especially when new pastures are being developed. If this is done, it holds the water more nearly where it falls. The objection to this practice is that it makes the pasture more difficult to clip in keeping down the weeds until the grass becomes established. Where the contours are as much as ten feet apart it is much easier to operate a mower effectively over the land. Very little grazing should be allowed on new pastures until the grass is established.

Some very good contouring has been done with a farmall tractor and two-row lister. The field was bedded at three foot intervals just as though corn or cotton were to be planted. This was on a Buffalo grass pasture, and before the season was over the furrows had become entirely covered with the grass. There was as much pasturage afforded for the season as would have been the case if the pasture had not been disturbed, because of the extra amount of grass produced during the latter half of the season, due to the greater amount of water held on the land. During the following season, this land carried twice as many cattle as an adjoining pasture which had not been contoured.

Where old pastures are to be improved and the contours placed at 10-foot intervals the owner of the land may object to destroying so much of the grass. Where this is the case, it may be desirable to place the contours at 20-foot intervals and then after they have become covered with grass, during the following season, the intermediate contour may be plowed in. This destroys only a small percentage of the grass during any one season and the first year's contours will greatly improve and increase the amount of grass during the second year, so that the pasturage destroyed by the additional contours will not be such a serious handicap.

Many of the old pastures which are located on fields which were once cultivated but which were abandoned due to erosion have such a small percentage of grass that it is necessary to set out new pastures at the time the land is contoured. When this is the case, the practice is very similar to that used in setting out entirely new pastures.

On pasture land that has gullies or even where the waterways are only slightly depressed, it is quite important that the contour furrows do not cross these in a straight line, as would be the case if terraces were being constructed. It is highly advisable that the furrow be turned upward at the end three or four feet before reaching the edge of the waterway, so that the water is carried away from the old established waterway rather than toward it. If the contours are run directly across these water channels, a great deal of water from the contour furrow will follow the furrow to the old channel and much of the water will thus escape, and the concentration of water may cause continued cutting before the grass is established.

Where the old established waterways are quite broad, it would no doubt be beneficial to plow separate contours across the waterway. In some cases, it is advisable to have these in the form of an inverted U so that the tendency will be to throw the water out of this waterway into the main contour. It is best, in most cases, for these furrows to be independent, rather than a part of the main contours.

Where pastures have quite a steep slope, it is usually preferable to build terraces. These terraces should under most conditions be built level, that is without any fall, so that all or nearly all of the water will be held on the land. To get best results they should be placed rather closely together, in which case they will not have to be built quite so high. This, of course, becomes very similar to contouring - the two methods blending together under many conditions.

Sometimes it is desirable to combine the practices of terracing and contouring, the terraces being built at the regular intervals, and contouring taking place at 10 foot intervals between the terraces. This is especially desirable on the steeper slopes.

Where there is a cultivated field below the pasture, and this cultivated field is to be terraced, it is usually advisable to have the pasture terraced also, so as to be certain that no water from the pasture will be allowed to flow upon the cultivated land below. If this were allowed, the chances are that the first terrace on the cultivated field would not be able to accommodate all of the water coming to it, and as a result the whole terracing system would probably be destroyed.

In many cases where pastures adjoin cultivated land, it is possible to empty terraces onto the pastures. This supplies extra water for the grass, and may also relieve the necessity for extra outlet protection. In the Texas Blacklands, however, due to excessive cracking of the soil during dry seasons even on well vegetated areas, great caution must be exercised in dumping excess water on pastures.

If pastures are properly contoured or terraced, and are not unduly over-grazed, all of the rainfall which falls on the land can be held there. This will result in a much better pasture growth and will also give complete protection from soil erosion. This can be done on all land except that which is excessively steep or rocky. This should be the aim of every live-stock man, in order to produce the greatest amount of pasturage, and to preserve his land for himself and for future generations.

- - - - - - - - - - - - - - - - - - - -

Had Longfellow written of the soil instead of the soul, he might have said:

"Rain is real,

Rain is earnest,

And the soil it doth despoil;

Dust thou art,

To dust returneth

Was not spoken of the soil."

PROGRESS REPORT FOR FEBRUARY, 1935.

1. 91.4 miles of terrace lines were run during the month of February.

2. Total miles of terrace lines run to February 28, 2,405.3 miles.

3. On 506 farms comprising 62,180 acres which are under cooperative agreement, terrace lines have been run on 53,674 acres.

4. 136.29 miles of terraces were constructed in February.

5. Total miles of terraces constructed to February 28, 994.9

6. 98 check dams for controlling erosion in permanent waterways were built in February. 2362 dams have been built to February 28th.

7. Records are now being kept in 166 Texas Farm Record Books and 179 Cotton Record Books, which were issued by the Soil Erosion Service.

8. 62 terrace outlets were sodded during the month of February.

9. 3551 square yards were sodded in 5 terrace outlet ditches this month.

10. Pasture sodding was completed on 50 farms. Acres sodded, 482.

11. 96 spreaders were constructed in ditches and terrace outlets in preparation for vegetation.

12. Soil erosion control practices have either been completed or are in process of completion on 506 farms.

13. 9,662 acres were mapped, showing soil types, degree of erosion and slope of land, during the month of February.

14. Eleven educational meetings, for adults, were held in February.

- - - - - - - - - - - - - - - - - - - -

The tenant-farmer's stake in soil conservation is almost as great as the land-owner's. It is true that soil erosion control practices add to the capital value of the land. But they also add to the productive value. The tenant who remains on a farm, and who pays usual crop rent, gets from two to three times as much as the owner from soil improvement for the reason that he gets from two-thirds to three-fourths of the crops grown.

- - - - - - - - - - - - - - - - - - - -

THE EFFECT OF SOIL EROSION ON FARM INCOME ON A GROUP OF FARMS IN THE ELM CREEK WATERSHED

The work of classifying the soil types and the degrees of erosion on the 310 farms included in the economic study has been sufficiently completed to allow us to give a preliminary report of conditions existing in a portion of the watershed in 1933. Analyses have been made to determine what effect, if any, erosion of the soil has upon the net farm income or the labor earnings of the typical farm family in the area.

Recognizing that normally the farmer's return for his year's work depends largely upon; (1) the productivity of the soil cultivated, (2) the amount of machinery, equipment and workstock used, and, (3) the amount of man labor, etc., invested in the various enterprises, we have studied the survey data with the view of determining the possible reasons for differences in return on farms within the same community and of similar soil types. We recognize that there is a difference in managerial ability of the several farm operators which enters into the picture and we wish to explain in the outset that no attempt has been made to adjust for this factor. It is believed that with a group of farmers the effect of abilities below and above the average will tend to offset or balance, leaving the net effect of the other factors.

The family labor earnings on a group of 15 comparable farms in the Elm Creek Watershed, operated largely by tenant farmers in 1933 are shown in the following table:

Erosion Class	Net Returns		Net returns per $100 invested in mach'y equipment & wkstock	Net returns per $100 expended for labor & operating costs
	Per Acre	Per 100-acre Farm		
I	$8.03	$803.00	$147.41	$150.09
II	6.69	669.00	102.92	132.19
III	3.83	383.00	57.83	52.82
Increase of I over III	$4.20	$420.00	$ 89.58	$ 97.27

NOTE: The descriptive Classes of Erosion as made by the Soils experts were divided as follows:

I. Slightly eroded, less than 20% of the topsoil removed.
II. Moderate sheet erosion, from 20% to 60% of the topsoil removed.
III. Severe sheet erosion, over 60% of the topsoil removed, and with subsoil becoming exposed.

The farms in the above groups are located in the northern portion of the watershed with the predominant soil being Houston clay, some Houston clay, shallow phase, and Houston black clay, and a small amount of Houston clay, gray phase. This area, then, is not typical heavy black soil found generally in the southern and central portions of the Elm Creek Watershed.

The cropping systems practiced generally in this section include: cotton, corn, grain sorghums, oats, wheat, and a limited amount of dairying and sheep-raising.

If by the use of terraces and related means of erosion control the farm operator can arrest the devastating forces that are causing his farm lands, year by year, to yield a lower return for the labor and money invested, he should be interested in applying these measures without delay. The Soil Erosion Service asks only that both the tenants and landowners consider the cost and the reward, as against continued neglect and the penalty that is certain.

- -

RAINFALL DURING MONTH OF FEBRUARY, 1935.

Station Number	At or Near	Rainfall Inches
11	Stringtown	2.93
12	Heidenheimer	3.50
13	Oscar	2.93
14	Doubleheader	1.10
15	N.E. Temple	no record
16	Troy	.42
17	Pendleton	1.00
18	Moody	2.37
19	Shiloh Church	4.08
20	Bottoms Store	3.44
21	Cenaville	3.15
22	Theo Church	2.96
23	Bean Hill	2.64
24	Seaton	2.73
25	Airville	3.04
26	Cyclone	3.18
27	S.W. Meeks	2.59
	STATIONS IN NORTH ELM AREA	
40	Yarrellton	3.80
43	Barclay	3.21
44	Terry Chapel	3.45
45	Burlington	3.21
46	S.E. Meeks	3.22
47	Westphalia	3.12

- -

THE RECENT DUST STORMS ARE THE RESULT OF ANOTHER GREAT SOIL SCOURGE--WIND EROSION. THE SOIL EROSION SERVICE PROJECT AT DALHART, TEXAS, IS ENGAGED IN EROSION CONTROL WORK TO HELP PREVENT THIS GREAT LOSS.

- -

COMPLETE TERRACES AND FILLS

All Cooperators are urged to complete all terraces and fill work on their farms as soon as possible. There is no assurance that the Government will continue to help farmers bear the expense of erosion control structures after June 15th, 1935.

It is doubly important at this time that all terraces be completed because of the usually heavy rains of April and May. Terraces built to the specifications of the Soil Erosion Service (24 inches high, 24 feet wide, 3 foot crown and 3 foot water channel) will take care of these rains. Fills, of course, should be made from 1/4 to 1/3 higher than the average run of the terrace. Ditches should be cleaned out below structures and dirt placed around the wingwalls of the structures.

UNITED STATES
DEPARTMENT OF THE INTERIOR
SOIL EROSION SERVICE
OFFICE OF THE REGIONAL DIRECTOR
TEMPLE, TEXAS

OFFICIAL BUSINESS

SOIL EROSION SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
ELM CREEK WATERSHED---CENTRAL TEXAS
NEWS LETTER----------NO. 10

TEMPLE, TEXAS MARCH, 1935.